Program Perisian untuk memproses gabungan data-data terristrial dan dari Angkasa Lepas untuk kerja-kerja kawalan geodetik telah dilaksanakan dalam komputer kerangka utama di Institut Sains Komputer, Universiti Teknologi Malaysia, Kampus Sekudai.

Butiran mengenai program tersebut adalah seperti berikut:-

The 3DSuite Computer Program

by

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The 3D post processing suite or the 3DSuite, is a menu driven software written in Fortran 77 language in purely geometrical three-dimensional geodetic model using a rigorous least squares estimation technique for simultaneous processing of three categories of data as follows:

a) 3-D satellite data
b) Geodetic coordinate : latitude, longitude and height of exising control
c) Terrestrial measurements

The program has been installed at UTM Sekudai (mainframe) and is written is such a way that a knowledge on computers or computer programming is not necessary for its use, although, of course, the necessary geodetic and statistical knowledge is essential. It is a result of a 5 years joint research by Encik Abdullah Daud and Dr. Sobar Sutisna at Newcastle University.

Current research

Currently the program is used for processing the derived GPS data for the geodetic controls of Johor, which is part the New National Geodetic Network.

The input data

The data input can be derived from 3 sources

a) Satellite systems	-	Baseline vectors
	-	Relative coords
	-	Absolute coords
b) Conventional techniques	-	Azimuths
	-	Angles Distances
	-	Ht. Differences
	-	Vert. angles
	-	Directions

c) Existing trig. coords.
- Geodetic latitudes
- Geodetic longitudes
- Geodetic heights

The output data

a) Basic output
- Station coords (XYZ)
- Bias parameters (scale, rotation & shift)

b) Derived output
- Geodetic coords (lat, long, ht)
- Plane coords (RSO & UTM - E,N)
- Azimuths & distances on ellipsoid
- Azimuths & grid dist. on projection plane

c) Quality analysis — The quality (precision & reliability) of all the above computer parmeters

Applications

The program is designed to cater wider survey applications, some of which are follows:

a) Adjustment of 3-D networks for engineering, mapping, hydrography and 'cadastral' controls, up to 100 stations.

b) The use of advanced computing model enables the program to combine data derived from the usual conventional techniques with the advanced 'space' systems. The inherent coordinate systems associated with the data is solved by introducing bias parameters.

c) The numerous options in the quality analysis (precision and reliability) can be used to present the results with greater confidence. The option is particularly useful for specialised engineering applications such as planning and construction of long bridges and monitoring.

d) The network design can be used for determining the best observations scheme for achieving a given specifications. The expected quality of the results can be shown to the client prior to the actual field operations.